SECTION C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Convert the following convert the following decimal number to hexadecimal numbers

(a) 2501

(b) 3387

(c) 457

(d) 3208

17. Enter the following function on a Karnaugh map and solve it.

$F = ABC + A\overline{B}C + AB\overline{C}$

$F = \overline{A}B\,\overline{C} + \overline{A}BC + \overline{A}B\overline{C}$

$F = A + \overline{A}C + B\overline{C}$

18. Draw the circuit diagram of multiplexer and write its operation and truth table.

19. Write a short note on the following

(a) RS flip-flop

(b) Clocked SR flip-flop and

(c) D flip-flop

20. Discuss the construction and operation of R-2R ladder networks with diagram.

Shanmuga Industries Arts & Science College T.V.Malai

APRIL/MAY 2025

23UEL41 — DIGITAL ELECTRONICS

Time : Three hours Maximum : 75 marks

SECTION A — (10 × 2 = 20 marks)

Answer ALL questions.

1. Convert the following octal number to binary number:

(a) 20

(b) 367

2. Convert decimal number to binary number:

(a) 205

(b) 99

3. Draw the circuit diagram of AND gate and write the truth table.

4. State the Boolean theorems.

5. What is BCD adder?

6. Distinguish between multiplexer and demultiplexer.

7. Draw the circuit diagram of JK flip-flop with truth table.

8. What is shift register?

9. Define accuracy.

10. What is dual slope ADC?

SECTION B — (5 × 5 = 25 marks)

Answer ALL questions.

11. (a) Convert the following binary numbers to hexadecimal numbers

(i) 1011

(ii) 0101

(iii) 1101

(iv) 1100

Or

(b) Convert the following to octal numbers.

(i) C35A

(ii) 4DFA

(iii) 7BF3

Shanmuga Industries Arts & Science College T.V.Malai

12. (a) Reduce the following Boolean functions.

$F = \overline{A}\,\overline{B}C + \overline{A}BC + ABC + AB\overline{C}$.

Or

(b) Give a brief account of sum of products.

13. (a) Explain the adder and subtraccor.

Or

(b) Draw the circuit diagram of encoder circuit and explain its operation.

14. (a) Discuss the construction and working of ring counter.

Or

(b) Write any five applications of IC 555 timer.

15. (a) Explain the digital to analog convener.

Or

(b) Discuss the successive approximation method of ALDC.